..BSTRACT OF THE DISCLOSURE

A semiconductor device includes an elongated, blade-shaped semiconductor element isolated from a surrounding region of a semiconductor substrate by buried and side oxide layers. A polysilicon post disposed at one end of the element has a bottom portion extending through the buried oxide to contact the substrate, providing for electrical and thermal coupling between the element and the substrate and for gettering impurities during processing. A device fabrication process employs a selective silicon-on-insulator (SOI) technique including forming trenches in the substrate; passivating the upper portion of the element; and performing a long oxidation to create the buried oxide layer. A second oxidation is used to create an insulating oxide layer on the sidewalls of the semiconductor element, and polysilicon material is used to fill the trenches and to create the post. The process can be used with conventional bulk silicon wafers and processes, and the blade devices can be integrated with conventional planar devices formed on other areas of the wafer.



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